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I.—*A Revision of the Species of the Genus Pipra.*

By C. E. HELLMAYR.

(Plate I.)

THE characters of the genus *Pipra* of Linnæus (Mus. Adolph. Frid. ii. Prodrum. (1764) p. 22), the type of which, by elimination, is *Pipra aureola*, are too well known to be repeated here. Mr. Selater, our latest authority on the subject*, admits eighteen species, besides one subspecies. While I quite agree that *P. filicauda*, *P. cornuta*, *P. iracunda*, and *P. cinnamomea* ought to be separated generically, it seems to me that two more species, viz. *P. gutturalis* and *P. leucorhoa*, should be excluded from the genus *Pipra*. The narrow, more or less shortened first primary and the slightly elongated throat-feathers clearly indicate their close relation to *Chromacheris*, and I think that they are better placed in a separate genus, of which the proper name is *Corapipo* Bonap.

Thus restricted, the genus *Pipra* forms a fairly natural group consisting of 19 species and 6 subspecies. Perhaps *P. virescens* and *P. stolzmanni* are the most aberrant

* Cat. Birds Brit. Mus. xiv. (1888) pp. 292-303.

members, being of very small size with relatively long wings. If separated generically, the name *Tyranneutes* Sel. & Salv. would become their proper appellation.

In the synonymy, I have usually quoted only the original references for every name; but in some cases where two or more recognisable races have been united under one heading by former writers, I have given the principal references. Special attention has been paid to geographical distribution, and the range of each species and subspecies is stated in full. I have had the advantage of consulting a large amount of material which, in most cases, illustrates very fully the geographical and individual variation of the various forms. Besides the extensive series at Tring, I have examined those belonging to the Vienna Museum and most of the specimens in Count Berlepsch's collection and in the British Museum.

I wish to express my sincere thanks to Count Berlepsch, Dr. Hartert, Dr. L. von Lorenz, and the Hon. W. Rothschild for the help so readily afforded in placing their treasures at my disposal.

Before proceeding to the detailed account, I give a key to the various forms which I hope will prove useful to students of this pretty group.

Key to the Species and Subspecies.

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|----|---|--|--------------------------|
| 1. | { | Back (except the rump in some species), wings, and tail black.—2. | |
| | { | No black whatever in the plumage. | |
| | { | Back always green.—16. | |
| 2. | { | Rump and upper-tail-coverts black like the back.—3. | |
| | { | Rump and upper-tail-coverts blue.—12. | |
| 3. | { | A white band across inner web of the quills.—4. | |
| | { | No white band across the quills.—6. | |
| 4. | { | Whole abdomen bright yellow; a broad yellowish white band across the tail. | <i>P. fasciicauda</i> ♂. |
| | { | Sides of the abdomen and under-tail-coverts black, no white band across the tail.—5. | |

5. { A narrow frontal band, cheeks, and anterior portion of throat orange-yellow *P. aureola* ♂.
 { Anterior part of the head as far as the eyes, sides of the head and neck, and whole throat bright yellow *P. a. flavicollis* ♂.
 { Head bright yellow *P. erythrocephala* ♂.
6. { Head above white.—7.
 { Head above blue.—8.
 { Head above red.—9.
7. { Feathers of the occiput but slightly elongated, blackish at the base. Tail not exceeding 34 mm. in length.
 } Tail 25-30 mm. *P. leucocilla* ♂.
 } Tail 30-34 mm. *P. l. coracina* ♂.
8. { Feathers of the occiput snow-white to the base and so much elongated as to form a long, full crest. Tail 36 mm. *P. l. comata* ♂.
 { General colour and a broad frontal band deep black *P. velutina* ♂.
 { General colour dull brownish black with a slight violet hue on rump and underparts. No black frontal band *P. coronata* ♂.
9. { Tail strongly rounded, the outer rectrices being about 5 mm. shorter than the inner. Axillaries black *P. chloromeros* ♂.
 { Tail square. Axillaries never black.—10.
10. { Thighs and axillaries yellow.—11.
 { Thighs white tipped with red *P. rubrocapilla* ♂.
11. { Forehead and crown decidedly paler, more orange-red than the occiput. Thighs and a large chin-spot pale yellow. Distinct yellowish edges to the inner web of the remiges *P. mentalis* ♂.
 { Forehead almost as dark red as the occiput. Large yellowish chin-spot, thighs deep gamboge-yellow. Distinct yellowish edges to the inner web of the remiges *P. m. ignifera* ♂.
 { Head and thighs as in *P. m. ignifera*. Chin-angle but narrowly bordered with yellow; no yellowish edges to the inner webs of the remiges *P. m. minor* ♂.
12. { Whole body beneath black.—13.
 { Abdomen yellow or orange.—15.

13. { Head above light blue *P. cæruleocapilla* ♂.
 Head above milky white.—14.
14. { Rump pale azure-blue *P. isidori* ♂.
 Rump whitish blue *P. i. leucopygia* ♂.
15. { Abdomen and a large spot on the fore-
 neck clear yellow; forehead as far as
 the anterior margin of the eye white. *P. serena* ♂.
 Abdomen orange. No yellow spot on
 the fore-neck; forehead and anterior
 portion of the crown white *P. suavissima* ♂.
16. { Top of the head covered by rather flat-
 tened feathers, forming a well-defined
 sky-blue, white, or opalizing cap.—17.
 Feathers of the head not different in
 shape from those of the back, either
 without any bright colour or with a
 yellow patch in the centre of the
 crown.—19.
17. { Cap sky-blue; feet dark horn-brown .. *P. exquisita* ♂.
 Cap not blue; feet flesh-coloured.—18.
18. { Cap and rump white *P. nattereri* ♂.
 Cap beautifully opalizing; rump green
 like the back *P. opalizans* ♂.
19. { Back pure grass-green. (No yellow ver-
 tical spot.)—20.
 Back olivaceous or brownish green.—27.
20. { Abdomen bright yellow.—21.
 Lower parts dull green, only the middle
 line of the abdomen being pale dirty
 yellowish.—26.
21. { Feet flesh-coloured; a distinct yellow-
 ish-white margin to the inner webs
 of the remiges.—22.
 Feet dark horn-brown; no pale margin
 to the inner web of the remiges.—24.
22. { Pileum dull bluish *P. nattereri* ♀.
 Pileum green like the back.—23.
23. { Bill large. Throat, chest, and sides of
 the body dull greenish, in strong con-
 trast to the clear yellow colour of the
 abdomen *P. opalizans* ♀.
 Bill much smaller. Throat, fore-neck,
 and the innermost sides of the chest
 scarcely shaded with greenish *P. gracilis* ♀.
24. { Forehead and crown dull bluish *P. suavissima* ♀.
 Whole pileum green like the back.—25.

25. { With a dark green jugular band sharply defined against the clear yellow abdomen. Wing 57 mm. *P. exquisita* ♀.
 { Throat and fore-neck dull greenish olive, this colour insensibly passing into the yellow of the abdomen. Wing 53 mm. *P. serena* ♀.
26. { Forehead and crown dark grass-green like the back { *P. coronata* ♀.
 { *P. velutina* ♀.
 { *P. cæruleocapilla* ♀.
 { Forehead and crown yellowish olive, decidedly different from the dark green back *P. isidorii* ♀.
27. { Wing never exceeding 53 mm.—28.
 { Wing always more than 55 mm.—29.
28. { Outermost rectrix much narrowed and shortened, at least 10 millimetres less than the longest. A large bright yellow vertical patch *P. virescens* ♂ ♀.
 { Outermost rectrix quite as long as the middle pair and not abnormally shaped. No yellow vertical spot *P. stolzmanni* ♂ ♀.
29. { Throat dull yellow. { *P. aureola* ♀.
 { *P. fasciicauda* ♀.
 { Throat greenish or greyish.—30.
30. { Axillaries and under-wing-coverts dull grey. Head above slate-grey or mixed with grey.—31.
 { Axillaries and under-wing-coverts pale yellowish or whitish. Head above pure olive-green like the back, without any greyish admixture.—32.
31. { Top of the head green, mixed with slate-grey. Tail shorter, 25–30 mm. *P. leucocilla* ♀.
 { Top of the head pure slate-grey. { Tail 30–34 mm. *P. l. coracina* ♀.
 { Tail 36 mm. *P. l. comata* ♀.
32. { Tail strongly rounded, the outermost rectrix being about 5 mm. shorter than the longest *P. chloromeros* ♀.
 { Tail square.—33.
33. { Tail very short, 21–24 mm. *P. erythrocephala* ♀.
 { Tail always more than 25 mm.—34.
34. { Axillaries and under-wing-coverts pale yellow. Under-parts strongly washed with olive-green. { *P. mentalis* ♀.
 { *P. m. ignifera* ♀.
 { Axillaries and under-wing-coverts dirty whitish; under-parts greyish green. { *P. m. minor* ♀.
 { *P. rubrocapilla* ♀.

1. *PIPRA AUREOLA*.*

Parus Aureola Linnæus, Syst. Nat. x. (1758) p. 191 (excl. cit. Seba) [based on Edwards, Nat. Hist. Birds, ii. p. 83, tab. 83. fig. 2, "from some part of South America, near the equinoctial line": I select SURINAM as the typical locality].

Pipra rubra P. L. S. Müller, Natursyst. Suppl. (1776) p. 177 [based on D'Aubenton, Pl. enl. 302. fig. 2: CAYENNE].

Pipra aurantia Wagler, Isis (1830), p. 932 [based on Edwards, l. c. tab. 83. fig. 2].

Pipra dubia Madarász, Zeitschr. ges. Orn. iii. (1886) p. 270, tab. ix. (spec. decolor.).

Pipra aureola flaviceps (errore!) Riker & Chapman, Auk, viii. (1891) p. 24 [Santarem, Lower Amazons].

Habitat. CAYENNE: Saint Georges¹, Ouanary¹, Mahury¹ (Geay coll., Mus. Paris). CAYENNE: skins in Mus. Brit., Vindob., Tring, &c.; Cayenne⁷ (Desplanches coll.). SURINAM: near Paramaribo and Kwata (Chunkoo coll., Mus. Tring). BRIT. GUIANA: mouth of the Barima (Schomburgk coll.²); Bartica Grove³ (Whitely coll., ♀ in Mus. Brit.). N.E. VENEZUELA: Guanoco in the Orinoco Delta (André coll., ♂ ad. in Mus. Tring); Pilar, near Carúpano, State of Cumaná (Goering⁴ & Smith⁵ coll.). N. BRAZIL (Lower Amazons): Palhetá, near Pará (Steele coll., 2 ♂♂ in Mus. Tring); Santarem (Riker & Natterer⁶ coll.); Rio Negro (Natterer coll.).

Typical locality. Not indicated in the original description: I select SURINAM.

Obs.—In the Cat. B. xiv. p. 293, some specimens are recorded from "Trinidad." These are simply trade-skins

* [In these headings the Editors are responsible for the omission of the authority.]

¹ Ménégauz, Bull. Mus. Paris, 1904, p. 180.

² Schomburgk, Reise Brit. Guiana, iii. (1848) p. 696.

³ Salvin, Ibis, 1885, p. 299.

⁴ ScL. & Salv. P. Z. S. 1868, p. 168.

⁵ Allen, Bull. Amer. Mus. N. H. iv. (1892) p. 55.

⁶ Pelzeln, Orn. Bras. ii. (1868) p. 126 (part.).

⁷ Bonaparte, Bull. Soc. Linn. Normandie (Caen), ii. (1857) p. 37.

of the so-called "Trinidad" or "Orinoco" make. Neither Chapman nor André met with the bird on the island, although the latter gentleman transmitted several thousand skins to the Tring Museum. The occurrence of *P. aureola* in Trinidad is therefore not yet ascertained.

♂ *ad.* (near Paramaribo, Surinam, 22.1.03; coll. Chun-koo).—Top of the head, nape, sides of the neck, fore-neck, and breast bright scarlet, the bases of the feathers creamy white; a distinct frontal band, lores, cheeks, and fore part of the throat orange-yellow, only the very tips of some of the feathers being red. Back and upper-wing-coverts velvety black; quills rather duller black, with a broad white band across the inner webs. Tail-feathers black, the outermost pair with a narrow white stripe along the shaft at the base of the outer web. Abdomen and under-tail-coverts black, the former pale red in the middle. Thighs whitish, pale yellowish at the tips. Axillaries and under-wing-coverts pale yellowish, edge of the wing bright yellow. Bill black; feet dark red. Wing 62–65; tail 28–32; bill 10–11 mm.

♀ *ad.* (near Paramaribo, Surinam, 12.4.01; coll. Chun-koo).—Upper surface dull greenish olive; wing-coverts, quills, and tail-feathers dark brown with greenish-olive edges. Throat dull olive-yellow; fore-neck and sides of the belly dull greenish olive, the former shaded with yellowish; middle line of the abdomen pale olive-yellowish. Axillaries and under-wing-coverts yellowish white. Upper mandible blackish brown; lower jaw paler brown, brownish white at the base. No white band across the remiges. Wing 63–65; tail 31–33; bill 10–11 mm.

Prof. Steere marks the iris as white in both sexes.

There is a certain amount of individual variation in the shade of the red and in the extent of the yellow colour on the head. Some specimens have the whole throat and a broad frontal band orange-yellow, while in others the latter is barely indicated and only a spot on the chin is clear yellow. I have both varieties from Surinam and the Rio Negro. One ♂ *ad.* from Pallictá (Pará), several from Surinam, and

one each from Santarem and the Rio Negro have a narrow white stripe along the shaft at the base of the outermost rectrix, but in other specimens from the same localities it is altogether wanting. Messrs. Chapman and Riker record *P. a. flaviceps* (misprint for *flavicollis*) from Santarem, but a single ♂ ad. collected by Natterer belongs to the typical *P. a. aureola*. The examples from Pará and the Rio Negro are also absolutely identical with others from Surinam.

The measurements of the males from the different localities are as follows:—

	Wing. mm.	Tail. mm.
3 ♂ ♂ ad. Rio Negro (coll. Natterer, Mus. Vindob.)..	62-64	29-30
♂ ad. Santarem (coll. Natterer, Mus. Vindob.)	62	28
2 ♂ ♂ ad. Palhetá, Pará (coll. Steere, Mus. Tring) ..	63, 63½	28, 30
1 ♂ ad. Guanoco, Orinoco Delta (coll. André, Mus. Tring)	63½	29
9 ♂ ♂ ad. Surinam (Mus. Tring, Vindob. & Berlepsch)	63-65	28-32
4 ♂ ♂ ad. Brit. Guiana (Mus. Berlepsch & Vindob.) ..	62-65	28-30

There is hardly any doubt that the birds figured by Edwards (*l. c.*) and D'Aubenton, Pl. enl. tab. 34. fig. 3, were simply colour-varieties of *P. aureola*. The type of *P. dubia* Mad. is evidently a discoloured specimen of the same species.

1 a. *PIPRA AUREOLA FLAVICOLLIS.*

Pipra flavicollis Selater, Contrib. Ornith. for 1851 (publ. 1852) p. 143 [Barra do Rio Negro]; Selater & Salvin, P. Z. S. 1867, p. 579 ["Mexiana and north side of the Amazons": cf. obs. below].

Pipra aureola Pelzeln, Orn. Brasil. ii. (1868) p. 126 (part.) [Borba, R. Madeira].

Habitat. N. BRAZIL, Lower Amazons: Barra do Rio Negro (*Wallace*); Borba on the Rio Madeira (*Natterer*).

Typical locality. BARRA DO RIO NEGRO.

Type. ♂ ad. Barra do Rio Negro, in Brit. Mus. (ex coll. Selater).

Obs.—The distribution of this well-marked form is still very imperfectly known. It was originally described from Barra do Rio Negro, but afterwards Selater and Salvin

doubted the correctness of this locality and recorded specimens which were said to be from "Mexiana and north side of the Amazons" (P. Z. S. 1867, p. 579). As a matter of fact, however, the examples collected by Steere near Pará and those obtained by Natterer at Santarem belong to typical *P. aureola*, while two males from Borba on the Rio Madeira (ex coll. Natterer) represent *P. a. flavicollis*. It seems therefore certain that on the Lower Amazons eastwards of Manáos the typical form alone occurs. *P. a. flavicollis*, on the other hand, appears to be confined to some of the southern tributaries of the Amazons. Perhaps Selater's type-specimen came from the southern bank of the Amazon opposite Manáos.

♂ *ad.*—Differs from *P. a. aureola* only in having the fore part of the crown as far as the eye, the sides of the head and neck (except the upper margin of the ear-coverts), and the whole throat pure bright yellow. The axillaries and under-tail-coverts are also of a brighter yellow.

	Wing. mm.	Tail. mm.	Bill. mm.
Mus. Brit. ♂ <i>ad.</i> Barra (Wallace coll.): type of the subspecies	61½	27	11
Mus. Vindob. 15734, "♂" <i>ad.</i> Borba (Natterer coll.)	63	30	11
Mus. Vindob. 15735, "♂" <i>ad.</i> Borba (Natterer coll.)	60	28	11

In the type the bases of the nape-feathers are creamy white, and on the outermost tail-feathers there is a narrow white shaft-stripe, as in some specimens of typical *P. aureola*. Natterer's examples shew no trace of the latter, and the basal portion of the interscapular feathers is pale yellow.

♀ unknown.

2. *PIPRA FASCIICAUDA* *, nom. nov.

Pipra fasciata Lafresnaye & d'Orbigny, Syn. Av. i. in Mag. Zool. 1837, cl. ii. p. 38 [Yuracares, East Bolivia]; d'Orbigny, Voyage Amér. mérid., Ois. p. 295, tab. 30. fig. 1 [Santa Cruz de la Sierra & Guarayos territory].

Habitat. E. BOLIVIA: Yuracares, Guarayos, and Santa

* The name *P. fasciata* Lafr. & d'Orb. is preoccupied by *P. fasciata* Thunberg, 1822 (cf. Lönnberg, Ibis, 1903, p. 241).

Cruz de la Sierra (*D'Orbigny*); Falls of the Rio Madeira (Rusby coll.¹). CENTRAL BRAZIL, MATTOGROSSO: Villa Maria, Engenho do Gama, R. Guaporé, Villa Bella de Mattogrosso, São Vicente (Natterer coll.²); Chapada (H. H. Smith coll.³); GOIAZ (*Natterer*²); NORTH S. PAULO: Rio Paraná (*Natterer*²); Faz. Cayoá (Hempel coll., ♂♂ ♀♀ in Mus. Tring); MINAS GERAES: Rio Jordão, Province Araguay (A. Robert coll., 3♂♂ in Mus. Tring). N.E. BRAZIL: Rio Tocantins (Wallace coll.⁴). EAST PERU: Ucayali (E. Bartlett coll.⁵); CENTRAL PERU: Chuchurras, prov. Huánuco (W. Hoffmanns coll., 3♂♂ in Mus. Tring).

Typical locality. YURACARES, E. BOLIVIA.

Type in Mus. Paris ex coll. D'Orbigny.

♂ *ad.* (Mus. Vindob. no. 15046, Villa Maria, Mattogrosso; coll. Natterer).—Top of the head and nape crimson with the bases of the feathers pale yellow, this colour being more visible on the nape; forehead, lores, cheeks, and anterior part of throat distinctly yellow; lower throat, ear-coverts, sides of neck, and whole breast clear yellow with broad crimson tips; abdomen and under-tail-coverts clear yellow, the latter with a distinct black terminal band. Back and upper-wing-coverts velvety black; quills rather duller black with a broad white band across the inner webs. Tail black, crossed by a broad white band, which is slightly tinged with yellowish on the outer webs. Bend and edge of the wing bright yellow; axillaries and under-wing-coverts pale yellowish. Iris white; feet and bill dark violet (A. Robert, MS.), in dried skins reddish black. Wing 65; tail 31; bill 11 mm.

♀ *ad.*—Exactly like the ♀ of typical *P. aureola* and only distinguishable by its rather more yellowish-olive (less greenish) upper surface and decidedly brighter yellow middle of the abdomen. Wing 62–65; tail 29–32; bill 10–11 mm.

¹ Allen, Bull. Amer. Mus. N. H. ii. (1889) p. 87.

² Pelzeln, Zur Ornith. Bras. ii. (1868) p. 127.

³ Allen, Bull. Amer. Mus. N. H. v. (1893) p. 109.

⁴ Sch. & Salv. P. Z. S. 1867, p. 579.

⁵ *Iid.* P. Z. S. 1873, p. 282.

There is very little variation in a large series of males from different localities. Some have the red tips of the breast-feathers and the black apical margins of the undertail-coverts rather wider than others, but this does not depend on locality. The specimens from Chuchurras, Centr. Peru, shew, perhaps, the throat of a purer yellow; they are, however, exactly matched by one male from Fazenda Cayoá in S. Paulo. As will be seen from the measurements given below, two males from North Bolivia (topotypical) are rather larger, but this is not likely to be a constant character, since the skins from Central Peru are fully as short-winged as those from Brazil.

	Wing. mm.	Tail. mm.	Bill. mm.
2 ♂ ad. S. Mateo, N. Bolivia. Mus. Berlepsch.....	68, 69	30, 32	12
2 ♂ ♂. Rio Paraná, S. Paulo. Mus. Vindob.	63, 64	30, 32	11
1 ♂ ad. Villa Maria, Mattogrosso. Mus. Vindob.	65	31	11
1 ♂ ad. Engenho do Gama, Mattogrosso. Mus. Vindob.	63	29	11
1 ♂ ad. Goiaz, Brazil. Mus. Vindob. .	64	29	12
2 ♂ ♂. Villa Bella de Mattogrosso. Mus. Vindob.	64, 65	30	11
3 ♂ ♂. Rio Jordão, Minas Geraës. Mus. Tring	64-65½	28-29½	10-11
1 ♂ ad. Faz. Cayoá, S. Paulo. Mus. Tring	64	28	10½
3 ♂ ♂ ad. Chuchurras, Centr. Peru. Mus. Tring	63-64	28-29	10-11

The species has been recorded from the Rio Tocantins, near Pará, by Messrs. Selater and Salvin. Their specimens are not in the British Museum, so that I could not ascertain myself whether they are really identical with the form inhabiting Western Brazil and Bolivia.

3. *PIPRA RUBROCAPILLA*.

Pipra rubrocapilla Temminck, Rec. Pl. col. livr. 9, tab. 54. fig. 3 (= ♂ ad.) [Apr. 1821.—“Brésil.”—I substitute BAHIA as the typical locality].

Pipra erythrocephala (nec Linnæus!) Lichtenstein, Verz. *Dubl. Berl. Mus.* 1823, p. 29.

Habitat. EASTERN BRAZIL: Rio de Janeiro (Natterer coll., specimen in Mus. Vindob.); Neu Freiburg (Burmeister coll.¹); Cantagallo, Rio²; Barra de Iucú, Espiritu Santo (Wied coll.³); Bahia (many Bahia skins in Mus. H. v. Berlepsch, Vindob., Tring, &c.); Caxangá, a spot between Recife and Beberibé, Pernambuco (W. A. Forbes coll.⁴); S. Lourenço, Pernambuco (A. Robert coll., 4 ♂♂ in Mus. Tring). CENTRAL and WESTERN BRAZIL: Engenho do Gama, Matto-grosso; Borba, Rio Madeira; Manaqueri, Rio Solimões (Natterer coll.⁵); Ega (Bates coll.⁶); Rio Juruá (Garbe coll.⁷). NORTH BRAZIL (Lower Amazons): Santarem (Riker coll.⁸); Bemfica and Marea de Legua, environs of Pará (Steere coll., ♂♂ ♀♀ in Mus. Tring). N.E. PERU: Santa Cruz, Ucayali (E. Bartlett coll.⁹); Iquitos (Whitely coll.¹⁰).

Typical locality selected: BAHIA, EAST BRAZIL.

Type, if still extant, in the Leyden Museum.

Obs.—In the *Cat. Birds*, xiv. p. 295, Mr. Selater records a specimen from “Rio Claro, Goiaz (*Joyner*).” This locality requires confirmation. Joyner’s skins are without original labels, and the localities in some cases are doubtless wrong, as I shall shew on another occasion.

♂ *ad.* (S. Lourenço, Pernambuco, 13 August, 1903; A. Robert coll. no. 1866, Mus. Tring).—Top and sides of the head (including lores, cheeks, malar region, and ear-coverts) bright crimson-red, the feathers of all these parts yellowish white towards the base. Whole body above and

¹ Burmeister, *Syst. Uebers. Th. Brasil.* ii. (1856) pp. 443, 445.

² Ihering, *Revis. Mus. Paulist.* iv. (1900) p. 156.

³ *P. erythrocephala* Wied, *Reise Brasil.* i. (1820) p. 187.

⁴ *Ibis*, 1881, p. 344.

⁵ Pelzeln, *Orn. Brasil.* ii. (1868) p. 127.

⁶ *Sci. P. Z. S.* 1857, p. 265.

⁷ Ihering, *Revis. Mus. Paulist.* vi. (1905) p. 435.

⁸ Riker & Chapman, *Auk*, 1891, p. 25.

⁹ *Sci. & Salv. P. Z. S.* 1873, p. 283.

¹⁰ Selater, *Cat. Birds*, xiv. (1888) p. 295.

below glossy black; the feathers bordering the gonydeal angle pale yellowish. Thighs white, exteriorly bright red. Axillaries blackish or dark greyish, whitish towards the base; larger under-wing-coverts blackish edged with dirty white, under-primary-coverts deep black. Inner secondaries with a distinct white margin along the inner web. Inner webs of the tail-feathers narrowly edged with whitish at the base. Iris blue (A. Robert, MS.); bill pale brown, lower mandible brownish white; feet pale brown.

Immature males have the throat white, mixed with blackish.

♀.—Above dull olive-greenish; wings and tail-feathers dark brown, margined with greenish, rather brighter than the back. Sides of the head and lower surface dull greenish, rather greyer on the throat and middle of the breast, and dirty whitish along the middle of the abdomen. Axillaries and under-wing-coverts dirty whitish. Bill and feet as in the male.

♂♂. Wing 60–65; tail 30–34; bill 8–9 mm.

♀♀. Wing 60–62; tail 31–33; bill 8–9 mm.

There is no difference whatever in colour or size between specimens from Bahia, Pernambuco, Mattogrosso, Rio de Janeiro, Manaqueri, Borba, and Santa Cruz, E. Peru.

Two ♂♂ ad. from the vicinity of Pará have the forehead and anterior portion of the crown rather lighter, more orange-red, while in all the other specimens examined these parts are of exactly the same deep crimson as the occiput. They may represent a different race, but I should like to see more specimens before separating it.

4. *PIPRA MENTALIS*.

Pipra mentalis Sclater, P. Z. S. 1856, p. 299, tab. 121. descr. orig. [Cordova, Vera Cruz]; id. P. Z. S. 1859, p. 285 [Playa Vicente]; Sclater & Salvin, Ibis, 1859, p. 125 [Vera Paz, Guatemala]; id. P. Z. S. 1870, p. 837 [Coast of Honduras]; Salvin, Ibis, 1872, p. 318 [Chontales, Nicaragua]; Ridgway, Proc. U.S. Nat. Mus. x. 1887 (publ. 1888), p. 589 [Segovia River, Honduras]; Salvin, Ibis,

1889, p. 364 [Meco and Mugerres Isl., off the coast of Yucatan]; Richmond, Proc. U.S. Nat. Mus. xvi. 1893 (publ. 1894), p. 509 [Escondido River, Nicaragua]; Salvin & Godman, Biol. Centr.-Amer., Aves, ii. (1890) p. 108 [part.: Mexico, Brit. Honduras, Guatemala, and Nicaragua].

Pipra mentalis mentalis O. Bangs, Bull. Mus. Comp. Zool. Cambridge (Mass.), xxxix. (1903) p. 149 [Ceiba: Honduras].

Habitat. EASTERN MEXICO: Cordova, Vera Cruz (Sallé coll.); Playa Vicente, Oaxaca (Boucard coll.); Teapa, Tabasco (H. H. Smith coll., Mus. Brit.); Tizimin, Yucatan (Gaumer coll., Mus. Brit.); Meco and Mugerres Island, off the coast of Yucatan (Gaumer coll.). GUATEMALA: Choctum and sources of the Rio de la Pasion in Vera Paz (Salvin coll.). BRITISH HONDURAS: Orange Walk (Gaumer coll.); Cayo (Blancaneaux coll.). HONDURAS: Ceiba (W. W. Brown, jr., coll.); Chamelicon River (G. Whitely coll.); Segovia R. (Townsend coll.). NICARAGUA: Chontales (Belt coll.); Escondido River [= Bluefields R.] (Richmond coll.); La Libertad (W. B. Richardson coll., Mus. Brit.).

Typical locality. CORDOVA, VERA CRUZ, EAST MEXICO.

Types. ♂ ♀ from Cordova, coll. Sallé, in Mus. Brit.

♂ *ad.* (Coban, Vera Paz, Guatemala).—Top and sides of the head and nape clear crimson-red, the bases of the feathers pale yellowish; front and anterior part of the crown rather lighter, more orange-red than the occiput and nape. A large chin-spot and thighs pale yellow. Under-wing-coverts and axillaries yellowish white, the under-primary-coverts black. Rest of body above and beneath glossy black; quills dull black, with very distinct yellowish-white edges to the inner webs. Base of tail-feathers slightly edged with white interiorly. Bill pale brownish, lower mandible whitish; feet pale brownish. Wing 58-62; tail 29-30; bill 9 mm.

♀.—Similar to that of *P. rubrocapilla*, but dull greenish olive, not so greyish, on the under-parts and the axillaries pale yellowish (not whitish). Wing 58-60; tail 28-30; bill 9 mm.

Specimens from the Chamelicon River in Honduras and from Chontales and La Libertad in Nicaragua are practically identical with those from E. Mexico and Guatemala. All have the thighs very pale yellow, the axillaries pale yellowish or even yellowish white, and the pale yellow chin-spot fairly extended. The inner webs of the quills always shew very distinct yellowish-white margins.

In *P. mentalis* and its southern forms the tail is quite square as in *P. rubrocapilla*, and is thus very different in shape from that of *P. chloromeros*.

The female is very much like that of *P. rubrocapilla*, but generally the lower parts are rather more greenish and the middle of the abdomen more yellowish. The best character, however, consists of the pale yellowish (not whitish) axillaries and under-wing-coverts.

4 a. *PIPRA MENTALIS IGNIFERA*.

Pipra mentalis ignifera Bangs, Auk, xviii. (1901) p. 363 [Divala, Chiriqui], descr. orig. ♂.

Pipra mentalis (nec Selater!) Selater & Salvin, P. Z. S. 1864, p. 362 [Lion Hill Station, Panama]; Lawrence, Ann. N. Y. Lyc. ix. (1868) p. 116 [Angostura, Paiz, and Tucurriqui: Costa Rica]; v. Frantzius, Journ. f. Ornith. 1869, p. 309 [Costa Rica]; Salvin, P. Z. S. 1870, p. 200 [Bugaba and Mina de Chorchá, Chiriqui]; Boucard, P. Z. S. 1878, p. 66 [San Carlos, Costa Rica]; Underwood, Ibis, 1896, p. 439 [Miravalles].

Chiroxiphia mentalis Lawrence, Ann. N. Y. Lyc. vii. (Jan. 1861) p. 296 [Panama Railroad].

Habitat. PANAMA: Lion Hill Station (McLeannan coll.); Sevilla Island, off the coast of Panama (J. H. Batty coll., Mus. Tring). CHIRIQUI: Divala (W. W. Brown, jr., coll.); Bugaba and Mina de Chorchá (Arcé coll.); Bogava, 800 feet (Watson coll., Mus. Tring). COSTA RICA: Angostura and Paiz (J. Carmiol coll.); Tucurriqui (J. Zeledon coll.); Miravelles (Underwood coll.); Boruca (G. K. Cherrie coll., Mus. Tring); Pozo Azul Pirris (Underwood coll., Mus. Tring).

Typical locality. DIVALA, CHIRIQUI.

Type in coll. E. A. & O. Bangs, Boston, no. 7823, ♂ ad. Divala, Chiriqui (W. W. Brown coll.).

♂ *ad.* (Bogava, Chiriqui, 800 feet, 6 Oct., 1903; coll. Watson).—Easily distinguished from the typical form by having the head of a much darker crimson-red, the forehead being very slightly or not at all paler than the crown and occiput; the axillaries and under wing-coverts rather brighter yellow and the thighs much more intense, of a deep gamboge-yellow. The black of the under-parts is rather deeper and more glossy. As in the typical form, there is a large pale yellow chin-spot, and the quills (except the outer primaries) have very distinct yellowish-white inner margins.

♀.—Exactly like that of the typical form, but upper- and under-parts decidedly brighter-olive greenish, with the middle of the abdomen and the thighs more deeply yellowish.

Specimens from Costa Rica are absolutely identical with typical Chiriqui skins and shew no approach to *P. m. mentalis*. Two males from Sevilla Island, off Panama, are not different.

I have taken the following measurements:—

	Wing.	Tail.	Bil.
	mm.	mm.	mm.
♂ ♂.			
8: Chiriqui	57-60	26-28	9-10
2: Sevilla Isl., Panama	60	26, 27	9½, 10
9: Costa Rica (Pozo Azul Piris and Boruca)	57½-61	27-28	9½-10
♀ ♀.			
3: Chiriqui	59-61	28-29	10
3: Costa Rica	60-62	28½-30	9½-10

4 b. PIPRA MENTALIS MINOR.

Pipra mentalis minor Harttert, Nov. Zool. v. (1898) p. 489 [Cachabi, N. Ecuador].

Pipra mentalis subsp. *minor* (sic!) Salvadori & Festa, Boll. Mus. Zool. Torino, xiv. no. 362 (1899), p. 14 [Rio Peripa, W. Ecuador].

Habitat. WESTERN ECUADOR: Cachabi, 500 feet (Rosen-

berg coll.); S. Javier and Carondelet, 60 feet (Flemming coll., Mus. Tring et Vindob.); Rio Peripa (Festa coll.).

Typical locality. CACHABI, NORTH ECUADOR.

Type in Mus. Tring: "♂" ad. Cachabi, N. Ecuador, 500 feet, 7.1.97 (W. F. H. Rosenberg coll., no. 207).

♂ *ad.*—Agreeing with *P. mentalis ignifera* in the deep gamboge-yellow thighs and the deep black lower parts, but differing in the following points: the crimson of the head is still more intense, this being particularly noticeable on the forehead and occiput; the gonydeal angle is but narrowly bordered with yellow; the inner secondaries alone shew very narrow, indistinct, yellowish-white edges on the inner webs; the bill is rather smaller and weaker, the wing on average shorter.

Ten ♂♂ from various places in N.W. Ecuador (including the type) measure: wing 55–58; tail 26–28; bill 8–9 mm.

♀ *ad.*—Exactly like that of *P. mentalis ignifera*, but on average slightly smaller, and with axillaries and underwing-coverts rather brighter yellow.

Five ♀♀ measure: wing 57–59; tail 27–28; bill 8½–9 mm.

In the original description, Hartert mentions two "Bogotá" skins belonging to this form. They are now before me, and I find that they are certainly not Bogotá skins, their make being quite different and, I may add, wholly unknown to me. Probably they come from some part of Northern Colombia. They agree in all essential points with Ecuadorian specimens, but the primaries have slight whitish inner edges. The wing is 55, the tail 28 mm. It remains to be ascertained how far north *P. m. minor* extends its range.

5. *PIPRA CHLOROMEROS.*

Pipra chloromeros Tschudi, Archiv Naturg. 10, i. (1844) p. 271 [PERU, sc. "Montañas des nordwestlichen Peru."—*Cf.* Faun. Peru., Aves, pp. 144, 145].

Habitat. NORTH PERU: Guayabamba, 4500 feet elev.

(O. T. Baron coll., Mus. Tring); Huambo¹ (Stolzmann coll.). CENTRAL PERU: Amable Maria, Monterico² (Jelski coll.); La Gloria, La Merced and Borgoña, 3200 feet elev.³ (Kalinowski coll.); Pozuzo, prov. Huánuco, 2400 feet elev. (Hoffmanns coll., Mus. Tring). S.E. PERU: Cosnipata⁴ (H. Whitely, jr., coll.). EAST BOLIVIA: Baganti, Yungas⁵ (Buckley coll.); San Mateo (G. Garlepp coll., Mus. H. v. Berlepsch & Vindob.); Yuracares, Santa Cruz (D'Orbigny coll.).

Typical locality. Montañas of NORTH PERU.

Type in Mus. Neuchâtel, collected by J. J. v. Tschudi.

Obs.—It must remain doubtful whether the birds from Santa Cruz, E. Bolivia, referred to by d'Orbigny and Lafresnaye as *P. rubrocapilla*⁶, belong to the latter species or to *P. chloromeros*, since the description of the thighs—"cruribus flavescens externis, in infima parte coccineis"—does not quite suit either. It is true that I have seen only *P. chloromeros* from Bolivia, but all the specimens which I have examined came from the northern part of that country, and it is not impossible that *P. rubrocapilla*, which occurs in Matto Grosso, extends its range to the eastern slopes of the Andes in Central Bolivia⁷.

♂ ad. (Mus. Tring, "♂" ad. La Gloria, Centr. Peru, 5 Aug., 1890; J. Kalinowski coll. no. 829).—Top and sides of the head bright crimson-red, the feathers yellowish white at the base. Thighs pale yellow, of the same shade as in typical *P. mentalis*. Whole body above and beneath, including axillaries and under wing-coverts, glossy black. No trace of a yellowish border on the chin-angle. Bill pale brownish, lower mandible whitish horn-coloured; feet pale

¹ Tacx. P. Z. S. 1882, p. 22.

² Id. P. Z. S. 1874, p. 539.

³ Berl. & Stolzmann. P. Z. S. 1896, p. 368.

⁴ ScL. & Salv. P. Z. S. 1869, p. 598.

⁵ Id. P. Z. S. 1879, p. 617.

⁶ *Pipra rubrocapilla* Lafr. & Orb. Syn. Av. in Mag. Zool. cl. ii. 1837, p. 38; d'Orbigny, Voyage, Ois. p. 294 [Santa Cruz de la Sierra, Yuracares, Bolivia].

⁷ D'Orbigny's two specimens, male adults, from Yuracares and Santa Cruz respectively, are now before me. They both belong to *P. chloromeros*.

brown; iris yellowish white (J. Kalinowski, MS.). Wing 61; tail 27; bill $8\frac{1}{2}$ mm.

♀ *ad.*—Agreeing with that of *P. mentalis ignifera* and *P. m. minor* in having the under-parts strongly washed with dull olive-greenish, except the pale yellowish middle of the abdomen, but easily known by its distinctly rounded (not square) tail. Wing 61–64; tail 27–30; bill 8–9 mm.

There is no appreciable difference between the males from different parts of Peru, either in size or colour. Some specimens shew a few pale red feathers on the thighs, but the latter are always pale yellow, never red and white as in *P. rubrocapilla*. The axillaries and under-wing-coverts are usually uniform black, margined only in immature birds with greyish or whitish.

Measurements.

	Wing. mm.	Tail. mm.	Bill. mm.
3 ♂ ♂ <i>ad.</i> Guayabamba and Huambo, Northern Peru	61–63	29	9–9½
2 ♂ ♂. Pozuzo, Huánuco	62, 63	28, 30	8
3 ♂ ♂. La Gloria, Centr. Peru	60, 61½	27, 28	8–9

The adult male of *P. chloromeros* differs from that of *P. rubrocapilla*, besides having yellow thighs, in its deep black axillaries and under-wing-coverts, in lacking the whitish edges to the inner webs of the secondaries, and in the form of the tail. The latter is distinctly rounded, the outermost tail-feather being the shortest and about 5–6 mm. less than the longest. The shafts of the outer rectrices are stiff and rather thickened at the base, a peculiarity already noticed by Taczanowski¹. In *P. rubrocapilla* and *P. mentalis* the tail is quite square, and the shafts of the outer rectrices are soft and thin.

The female is also easily known by its distinctly rounded tail (the outermost rectrix about 5 mm. shorter than the longest); while it is quite square in *P. mentalis*, *P. rubrocapilla*, and *P. erythrocephala*.

¹ Orn. Pérou, ii. p. 339.

6. PIPRA ERYTHROCEPHALA.

Parus erythrocephalus Linnæus, Syst. Nat. x. (1758) p. 191 [based on Klein and Edwards: "in America australi." I select SURINAM, ex Edwards, as the type-locality].

Pipra aurocapilla Lichtenstein, Verz. Dubl. (1823) p. 29 ["Brasil"].

Habitat. SURINAM: Maroni River¹ (Kappler coll.). CAYENNE: Mahury² (Geay coll.); specimens of Cayenne make in Mus. Brit., Berlepsch, &c. BRITISH GUIANA: Bartica Grove, Camacusa, Merumé Mts., River Atapurow, Roraima³ (H. Whitely coll.). VENEZUELA: Guanoco in the Orinoco Delta (E. André coll., Mus. Tring); Campos Alegre near Cumaná (Caracciolo coll., ♂ ad. in Mus. Tring); Puerto Cabello (Starke coll., Mus. Berlepsch); Maipures, Samborge and Nericagua: Orinoco River⁴; Suapure, La Pricion, Nicare, and La Union: Caura R.⁴, a southerly tributary of the Orinoco (E. André & Klages coll.). TRINIDAD (P. Rendall & André coll., many specimens in Mus. Tring). NORTH BRAZIL: Pará⁵ (Layard coll.), River Capim⁶ (Goeldi coll.); Barra do Rio Negro; Barcellos, Marabitanas, Rio Içanna, San Pedro; all on the Rio Negro⁷ (Natterer coll.); Tocantins⁸, R. Solimoëns (G. Garlepp coll.). N.E. PERU: Pebas⁹, R. Tigre (J. Hauxwell coll., Mus. Brit., Vindob. & Berlepsch); Nauta⁹ and Chyavetas⁹ (E. Bartlett coll.); Iquitos¹⁰ (in coll. Raimondi). EASTERN ECUADOR: Gualaquiza^{11 12} (Fraser & Festa coll.); Zamora¹² (Festa coll.); Coca, Upper Napo¹³ (Goodfellow & Hamilton coll.). COLOMBIA: Bogotá coll. (in Mus. Berlepsch, Tring,

¹ Selater, Cat. B. xiv. p. 296.

² Ménégaux, Bull. Mus. Paris, 1904, p. 180.

³ Salvin, Ibis, 1885, p. 300.

⁴ Berlepsch & Hartert, Nov. Zool. ix. (1902) p. 53.

⁵ Ibis, 1873, p. 384.

⁶ Ibis, 1903, p. 499.

⁷ Pelzeln, Orn. Brasil. ii. (1868) p. 127.

⁸ Berlepsch, J. f. O. 1889, p. 99.

⁹ Scf. & Salv. P. Z. S. 1873, p. 283.

¹⁰ Tacz. Orn. Pérou, ii. (1884) p. 340.

¹¹ Selater, P. Z. S. 1858, p. 457.

¹² Salvadori & Festa, Boll. Mus. Torino, xiv. no. 362 (1899) p. 14.

¹³ Goodfellow, Ibis, 1901, p. 708.

Vindob., &c.) ; Bucaramanga¹ (Minlos coll.) ; Remedios and Neche, Antioquia² (Salmon coll.) ; Santa Marta³ (Simons, W. W. Brown, & H. H. Smith coll.) ; Rio Dagua (W. Rosenberg coll., Mus. Tring). PANAMA : Chepo⁴ (Arcé coll.).

Typical locality. SURINAM (*vide* Edwards).

♂ *ad.* (No. 4230, Mus. Berlepsch : Cayenne).—Top and sides of the head golden yellow, bordered on the nape by a narrow but distinct blood-red margin ; whole body above and beneath glossy black ; tibial feathers white on the lower portion, with long bright crimson tips. Axillaries, under-wing-coverts, and lower surface of the wing black. Bill whitish, upper mandible more brownish white ; feet flesh-coloured ; iris white (Rosenberg and Cherric, MS.). Tail square. Bill 8–9 mm.

♀ *ad.*—Upper-parts dull olive-greenish ; wings and tail dark brown, margined with the colour of the back. Sides of the head and under surface rather duller greenish than the back ; middle of the abdomen yellowish white. Axillaries and under-wing-coverts whitish, the latter slightly tinged with yellowish at the tips. Inner webs of the remiges very indistinctly edged with whitish.—Exactly like *P. rubrocapilla* ♀, perhaps rather more greenish underneath, but easily known by its short tail, which never exceeds 25 mm. in length. Wing 57–61 ; tail 21–24 ; bill 8–9 mm.

There is a large amount of variability in the intensity of the yellow colour of the head and the development of the red border on the nape. I have examined 103 adult males from the following localities :—

	Wing. mm.	Tail. mm.
1: Cayenne	57	24
3: Surinam	55–57	22–24
1: Merumé Mts., Brit. Guiana	54	22
2: Pará	Moulting.	

¹ Berlepsch, Journ. f. Ornith. 1884, p. 304.

² Sci. & Salv. P. Z. S. 1879, p. 516.

³ Salv. & Godman, Ibis, 1880, p. 169 ; Bangs, Proc. Biol. Soc. Wash. xii. (1898) p. 137 ; Allen, Bull. Amer. Mus. N. H. xiii. (1900) p. 156.

⁴ Sclater, Cat. B. xiv. p. 296.

	Wing. mm.	Tail. mm.
5: Barra do Rio Negro	53-55	21-23
2: Barcellos, Rio Negro	54, 55	20, 22
5: Upper Rio Negro (Marabitanas, R. Içanna, Rio Xié)	55-56	20-22
6: N.E. Peru (Pebas, Rio Tigre, Chyavetas)	56-60	20-23
2: Rio Napo, E. Ecuador	60	21½
29: Bogotá skins	56-60	20-23
1: Rio Dagua, W. Colombia	57	22
1: Santa Marta	Moulting.	
16: Caura River	55-57½	20-22
5: Maipures, Orinoco	54-56	20-21
4: Guanoco, Orinoco Delta.....	55-57	21-23
1: Cumana	57	21
2: Puerto Cabello	59, 60	25, 24
17: Trinidad	57-59	22-24

The specimens from Cayenne, Surinam, Guiana, the Lower Amazons, and one from Barcellos agree among themselves in having the crown of a pure golden yellow with a distinct blood-red border posteriorly; those from the Orinoco, Upper Rio Negro (including one from Barcellos), N.E. Peru, E. Ecuador, and most of the Bogotá skins have the crown decidedly paler yellow and the red border wanting or barely indicated. The series from Trinidad, Cumana, Puerto Cabello, and Guanoco varies in the contrary direction, the head being much deeper, more orange-yellow, and the red border decidedly broader and of a deeper blood-red. The examples from the Caura River, however, are so variously intermediate between the typical race from Guiana and the orange-capped one from N. Venezuela that I do not venture, for the present at least, to make any separation. In Bogotá collections there are occasionally specimens to be found which have the cap quite as bright orange-yellow as those from Trinidad &c. Very likely they come from the mountain-ranges north or west of Bogotá.

7. PIPRA LEUCOCILLA.*

Pipra leucocilla Linnæus, Mus. Ad. Fridr. ii. Prodr.

* Whether the specimen from S. Cristobal, W. Venezuela [Sel. & Salv. P.Z.S. 1875, p. 237, "*P. leucocilla*"], belonged to the typical form or to *P. l. coracina* must remain doubtful. It is not in the Brit. Museum.

p. 33 [1764—loc. ign.—I select SURINAM as the typical locality]; Cabanis in Schomburgk, Reise Brit. Guiana, iii. (1848) p. 697 [Brit. Guayana]; Burmeister, Syst. Uebers. Th. Brasil. ii. (1856) p. 444 [Neu Freiburg, Rio]; Selater, P. Z. S. 1857, p. 265 [Ega, W. Brazil]; Selater & Salvin, P. Z. S. 1866, p. 190 [Sarayacu, E. Peru]; iid. l. c. 1867, p. 751, pt. [Xeberos, Yurimaguas]; iid. l. c. 1873, p. 283, pt. [Sarayacu, Chamicuros, Xeberos, Yurimaguas]; iid. l. c. 1867, p. 580 [Pará]; Salvin, P. Z. S. 1867, p. 149 [Cordillera de Tolé; Veragua]; Pelzeln, Zur Orn. Brasil. ii. (1868) p. 127 [Barra do Rio Negro, Marabitanas, Rio Içanna]; Salvin, P. Z. S. 1870, p. 200 [Calovevora, Chitra, Boqueti de Chitra; Veragua]; Layard, Ibis, 1873, p. 384 [Pará]; Taczanowski, P. Z. S. 1882, p. 22 [Yurimaguas]; id. Ornith. Pérou, ii. (1884) p. 341 [part., Yurimaguas]; Salvin, Ibis, 1885, p. 300 [Bartica Grove, Camacusa, Merumé Mts.]; W. L. Selater, Ibis, 1887, p. 318 [Maccasseema, Brit. Guiana]; P. L. Selater, Cat. Birds Brit. Mus. xiv. (1888) p. 297; Ihering, Revist. Mus. Paulist. iv. (1900) p. 156 [Cantagallo, Rio]; Berlepsch & Hartert, Nov. Zool. ix. (1902) p. 53 [Suapure, La Pricion, and Nicare, all on the Caura R., Venezuela]; Goeldi, Ibis, 1903, p. 499 [Capim R.]; Ihering, Revist. Mus. Paulist. vi. (1905) p. 435 [Rio Juruá, W. Brazil].

Pipra leucocapilla Gmelin, Syst. Nat. 1, ii. (1788) p. 1002 [based on Linnaeus]; Wied, Reise Brasil. i. (1820) p. 187 [Barra de Juçu, Espiritu Santo]; id. Beitr. iii. (1830) p. 427 [Eastern Brazil].

Pipra cephaloleucos Thunberg, 1822 (cf. Lönnberg, Ibis, 1903, p. 241).

Habitat. CAYENNE: Camopi, Mahury, Oyack Mts.¹ (Geay coll., Mus. Paris). SURINAM: Maroni River (Kappler coll.). BRITISH GUIANA: Bartica Grove, Camacusa, Merumé Mts. (H. Whitely, jr., coll.); Mines district (♂♂ in Mus. Tring); Maccasseema, 60 miles from Georgetown (W. L. Selater coll.). EAST VENEZUELA: Suapure, La Pricion, and

¹ Ménégauz, Bull. Mus. Paris, 1904, p. 180.

Nicare, Caura River, a southern tributary of the Orinoco (Klages & André coll.). N. BRAZIL: Pará (Wallace, Layard, & Steere coll.); Capim River (Goeldi coll.); Benevides and Marguary, near Pará (Steere coll., ♂♂ in Mus. Tring); Barra do Rio Negro (Natterer coll.); Marabitanas and R. Içanna, Upper Rio Negro (Natterer coll.). EASTERN BRAZIL: Bahia (Bahia skins in Mus. Berlepsch, Tring, Vindob., &c.); Barra de Jucú, Espiritu Santo (*Wied*); Neu Freiburg, Rio (*Burmeister*); Cantagallo, Rio (*fide* Ihering). N.W. BRAZIL: Ega (Bates coll.); Rio Juruá (Garbe coll.). N.E. PERU: Sarayacu, Chanicuros, Xeberos, and Yurimaguas (E. Bartlett coll.), Yurimaguas (Stolzmann coll.). VERAGUA: Cordillera de Tolé, Calovevora, Chitra, Boqueti de Chitra (E. Arcé coll.).

Obs.—In Cat. Birds Brit. Mus. xiv. p. 298, Dr. Selater mentions a female as having been obtained near SAN PAULO, Brazil, by Joyner. As I remarked under *P. rubrocapilla*, Joyner's localities are not reliable, and the occurrence of *P. leucocilla* within the limits of the State of S. Paulo requires confirmation.

♂ *ad.* (Camacusa, Brit. Guiana, 29 March, 1882; coll. by H. Whitely, Mus. Tring).—Top of the head white, the feathers of the occiput slightly elongated and blackish at the extreme base. Whole remaining plumage glossy black; inner webs of quills and tail-feathers dull blackish brown. Axillaries and under-wing-coverts black. Bill blackish, extreme tip of under mandible pale; feet dark brown; iris cherry-red (J. B. Steere, MS.). Wing 63; tail 26; bill $9\frac{1}{2}$ mm.

♀ *ad.*—Upper surface pale olive-green, much brighter and purer than in all the foregoing species; head and nape distinctly shaded with greyish, though the green colour is still predominant; wings and tail dusky, edged with olive-green like the back. Sides of the head dull greyish with a slight greenish tinge. Under-surface pale greyish; chest and sides more or less washed with dull greenish. Axillaries and under-wing-coverts darker grey. Bill blackish; lower jaw greyish horn-coloured or even whitish; feet dark brown;

iris reddish orange (S. M. Klages, MS.), dark red (A. Robert, MS.).

There is no constant difference in size or colour between specimens from various localities. Two males from Veragua agree in dimensions with typical birds from the Guianas, while the form inhabiting the highlands of Colombia, Ecuador, and Northern Peru is considerably larger.

On the other hand, there is a good deal of individual variation in the females. Some are nearly uniformly cinereous below, shewing only a slight greenish suffusion across the chest and along the sides. I have such specimens from Chamicuros and the Caura River, Venezuela. Other examples from the same places, however, are much more greenish, being almost devoid of grey on the lower parts. In most specimens the head is distinctly mixed with greyish, only in a few is this scarcely apparent. The back is always of a purer and brighter olive-green than in the female of the foregoing species.

Specimens from various localities measure as follows:—

	Wing. mm.	Tail. mm.
♂ ♂ ad.		
3: Brit. Guiana	63-65	25-26
2: Pará	60, 62	23, 25
7: Rio Negro	60-64	25-28
3: Bahia	60-63	25-27
6: Chamicuros, E. Peru	58-62	25-27
3: Suapure, Caura	64-66½	25½-28
8: Nicare, Caura ¹	64-67	27-30
8: La Pricion, Caura ¹	64-66	27-29
1: "Orinoco" male	64	27
2: Veragua	59½, 60½	27
♀ ♀.		
1: Brit. Guiana	65	26
2: Pará	61, 62	25, 27
8: Rio Negro	59-64	26-28
2: Bahia	60, 64	27
4: Chamicuros, E. Peru	59-62	26-27
2: Xeberos, E. Peru	59, 60	25, 26
6: Caura River ¹	64-67	26-30

¹ As will be observed, the Caura specimens are rather larger on average.

7 a. PIPRA LEUCOCILLA CORACINA.

Pipra coracina Selater, P. Z. S. 1856, p. 29, descr. orig. ♂ ♀ [Bogotá coll.]; id. P. Z. S. 1858, p. 71 [Rio Napo]; Taczanowski, P. Z. S. 1882, p. 22 [Chirimoto, N. Peru]; id. Orn. Pérou, ii. (1881) p. 312 [Chirimoto and Huambo, N. Peru].

Pipra leucocilla (nec Linnæus!) Selater, P. Z. S. 1854, p. 114 [Quixos, E. Ecuador]; id. P. Z. S. 1855, p. 152 [Bogotá coll.]; Selater & Salvin, P. Z. S. 1867, p. 751 [part., Chyavetas, E. Peru]; iid. P. Z. S. 1873, p. 283 [part., Chyavetas]; Selater, Cat. Birds Brit. Mus. xiv. (1888) p. 297 [part., Veragua, Bogotá, Ecuador]; Salvadori & Festa, Boll. Mus. Torino, xiv. no. 362 (1899) p. 14 [Gualaquiza, E. Ecuador]; Goodfellow, Ibis, 1901, p. 709 [Baeza, East Ecuador].

Habitat. COLOMBIA: Bogotá coll. (in Mus. Brit., Berlepsch, Tring, &c.). EASTERN ECUADOR: Baeza, 5900 feet (Goodfellow & Hamilton coll.); Gualaquiza (Festa coll.); Sarayacu (Buckley coll., in Mus. Brit.); Quijos (*vide* Selater); Rio Napo (*vide* Selater, *ex* Verreaux). NORTH PERU: Chyavetas (Bartlett coll.); Guayabamba, 5500 feet (O. T. Baron coll., Mus. Tring); N. Loreto, 3600 feet (G. A. Baer coll., Mus. Tring); Chirimoto, 5400 feet, and Huambo, 3700 feet (Stolzmann coll.). CENTRAL PERU: Chuchurras,¹ near Pozuzo, prov. Huánuco, 1260 feet (W. Hoffmanns coll., Mus. Tring).

Typical locality. BOGOTÁ (trade-collections).

Types. ♂ ♀ in Mus. Brit. ex coll. P. L. Selater.

♂ *ad.*—Only distinguishable from the typical form by its rather larger size, and especially the longer tail. As in typical *P. leucocilla*, the feathers of the occiput are but slightly elongated and blackish at the base. Wing 65–70; tail 30–34; bill 9–10 mm.

♀.—Easily known from that of the typical form by its longer tail and by having the head and neck of a pure slaty-grey colour without any trace of greenish. The breast and sides are much deeper olive-green, only the throat and

¹ Chuchurras, a small village not far from Pozuzo, is situated on the Rio Pozuzo where it drains into the R. Palcazu.

middle of the abdomen being dull greyish. Wing 65-68; tail 32-34 mm.

Typical Bogotá skins are, as a rule, duller and deeper black without the metallic gloss so conspicuous in Peruvian specimens; but one is quite indistinguishable from the latter. Specimens from North Peru (Chirimoto and Guayabamba) and East Ecuador are practically identical; two males from Huánuco belong likewise to *P. l. coracina*, and are very different from the subspecies found in the Chanchamayo region. *P. l. coracina* seems to be an inhabitant of high elevations, where it apparently replaces the typical form. It is interesting to note that a female from Chyavetas is referable to *P. l. coracina*, while the specimens from Xeberos and Chamicuros belong to typical *P. leucocilla*.

The males from different localities give the following measurements:—

	Wing. mm.	Tail. mm.
6: Bogotá collections	69-70	30-32
1: Baeza, E. Ecuador	66	33½
1: Chirimoto, N. Peru	66	31
4: Guayabamba, N. Peru	65-67	32-34
2: Chuchurras, Huánuco	67-68	31

7 b. *PIPRA LEUCOCILLA COMATA*.

Pipra comata Berlepsch & Stolzmann, Ibis, 1894, p. 392 [La Gloria and Garita del Sol, Central Peru]; iid. P. Z. S. 1896, p. 368 [as above].

Habitat. CENTRAL PERU: La Gloria, Chanchamayo; Garita del Sol, Vitoc, 5700 feet (Kalinowski coll., Mus. II. v. B., Branicki, et Tring).

Types in Mus. II. v. Berlepsch; cotypes in Mus. Branicki and Tring.

♂ *ad.*—Easily distinguished from *P. l. coracina* by its longer tail and by the feathers of the occiput being so much elongated as to form a conspicuous full crest. These lengthened feathers are, moreover, pure white, and entirely lack the blackish bases to be seen in typical *P. leucocilla* and *P. l. coracina*. Wing 69-70; tail 36; bill 10 mm.

♀ *ad.*—Similar to that of *P. l. coracina*, but with the tail

longer, and the slaty grey of the head rather paler and extended over the whole nape. Wing 70; tail 36; bill 10 mm.

The descriptions and measurements are taken from the types in Count Berlepsch's collection and a topotype in the Tring Museum.

8. PIPRA ISIDORII.

Pipra isidorei Sclater, Rev. Zool. 1852, p. 9, descr. orig. ♂ [Bogotá coll., Mus. Paris].

Pipra isidori Sclater, P. Z. S. 1854, p. 114 [Quijos, E. Ecuador]; id. P. Z. S. 1855, p. 152 [Bogotá coll.]; id. Cat. Birds Brit. Mus. xiv. (1888) p. 298 [Bogotá coll. and Sarayacu, E. Ecuador]; Goodfellow, Ibis, 1901, p. 708 [Baeza, E. Ecuador].

Habitat. COLOMBIA: Bogotá coll. EAST ECUADOR: Quijos (*vide* Sclater). SARAYACU (C. Buckley coll., in Mus. Brit.); Baeza (Goodfellow & Hamilton coll., Mus. Tring).

Typical locality. BOGOTÁ (trade-collections).

Type. ♂ ad. in Mus. Paris ex Lewy.

♂ *ad.* (Bogotá coll., Mus. Tring).—Top of the head covered with somewhat elongated, lamelliform milky-white feathers, which are blackish grey at the extreme base; on the posterior margin of the white cap a very narrow pale bluish border. Rump and upper-tail-coverts beautiful pale azure-blue, the bases of the feathers black. Lores, auriculars, sides of the neck, back, wings, and tail dull velvety black; under-surface rather duller, more brownish black; throat and under-tail-coverts with a slight bluish hue. Axillaries and under-wing-coverts blackish brown. Bill blackish, lower mandible dull whitish or pale brownish; feet dark horn-brown. Tail square.

Twenty-two specimens from Bogotá and East Ecuador measure: wing 49–52; tail 22–24; bill 8–9 mm.

♀ *ad.*—Above dark grass-green; cap decidedly paler, about oil-green, and passing into yellowish green on the forehead. Wing- and tail-feathers dark brown, edged with the colour of the crown. Lores yellowish green, auriculars and sides of the neck green like the back. Throat, chest,

and sides dull greenish, middle of breast and abdomen including lower tail-coverts pale yellowish. Axillaries and under-wing-coverts dirty white. Bill and feet as in the male. Wing 51-54; tail 23-24; bill 8-9 mm.—The female closely resembles that of *P. coronata*, but is smaller and easily known by its yellowish oil-green cap.

One ♂ ad. from Baeza, East Ecuador, is absolutely identical with typical Bogotá skins and shews no approach to *P. i. leucopygia*.

8 a. PIPRA ISIDORII LEUCOPYGIA.

Pipra isidorei leucopygia Hellmayr, Verhandl. zool.-bot. Gesellsch. Wien, 1903, p. 200, descr. orig. ♂ ad. [Huambo, N. Peru].

Pipra isidori (nec Selater!) Taczanowski, P. Z. S. 1882, p. 23 [Huambo]; id. Orn. Pérou, ii. (1884) p. 342 [Huambo].

Habitat. NORTH PERU, in the Huayabamba Valley: Huambo, 3700 feet (Stolzmann coll., specimens in Mus. Varsovia, Berlepsch, & Vindob.), Guayabamba, 5500 feet (O. T. Baron coll., ♂ ad. in Brit. Mus.).

Typical locality. HUAMBO, NORTH PERU.

Type. ♂ ad., Huambo, N. Peru, coll. Stolzmann, no. 19242, Mus. Vindob.

♂ ad.—Easily known from the typical form by having the rump and upper-tail-coverts of a much paler whitish-blue colour. Wing 48-50; tail 20-22; bill 7 mm. Hence the bill is rather smaller.

Four male ad. from Huambo and Guayabamba examined. I have not seen the female of this form, but probably it does not differ from that of the typical race.

9. PIPRA CÆRULEOCAPILLA.

Pipra cæruleocapilla Tschudi, Arch. Naturg. 10, i. (1844) p. 271 [Peru.—In the Faun. Peruan., Aves, p. 145, the author says that he found the species in the "Montañas" of N.W. Peru; but this is obviously erroneous, since it is only known to occur in Central and Southern Peru].

Habitat. CENTRAL PERU: Amable Maria and Soriano¹

¹ Tacz. P. Z. S. 1874, p. 538.

(Jelski coll.) ; La Gloria and La Merced¹ (Kalinowski coll.) ; Pozuzo, prov. Huánuco, 2400 to 2850 feet elev. (W. Hoffmanns coll., Mus. Tring). S.E. PERU : Cosnipata² (H. Whitely coll.) ; Huaynapata, Marcapata (Kalinowski coll., Mus. Vindob.) ; Rio Huacamayo, Carabaya, 3100 feet elev. (Ockenden coll., Mus. Tring) ; Cuzco, Marcapata, 3100 feet (O. Garlepp coll., Mus. v. Berlepsch and Tring).

As *typical locality* selected : CENTRAL PERU.

Type in Mus. Neuchâtel ex coll. J. J. von Tschudi.

♂ *ad.* (Pozuzo, Huánuco, Peru, April 1904 ; W. Hoffmanns coll.).—Uniform velvety black ; top of the head beautiful Nile-blue on forehead and crown, decidedly darker cerulean blue on occiput ; lower rump and upper-tail-coverts azure-blue, the bases of the feathers black. Axillaries and under-wing-coverts black. Bill black, lower mandible paler ; feet black ; iris red-brown (Ockenden and Hoffmanns, MS.). Wing $53\frac{1}{2}$; tail 22 ; bill 8 mm.

♀ *ad.* (La Gloria, Centr. Peru ; Mus. Branicki).—Upper-parts dark grass-green ; quills and tail-feathers blackish with bright green margins. Lores and sides of the head rather darker and duller green than the back. Throat, chest, and sides dull greenish, a little underlaid with yellowish ; middle of breast, abdomen, axillaries, and under-wing-coverts pale yellowish. Bill and feet as in the male. Wing 54 ; tail 24 ; bill 8 mm.—Not distinguishable from the females of *P. coronata* and *P. velutina*.

There is very little variation in a good series of males. Two examples from S.E. Peru have the rump perhaps a little darker blue than those from Huánuco. I have taken the following measurements :—

	Wing. mm.	Tail. mm.	Bill. mm.
6 males from Pozuzo, Huánuco	51½-54	21-24	7-8
2 males from Marcapata	53	23, 24	7-8

10. PIPRA VELUTINA.

Pipra velutina Berlepsch, Ibis, 1883, p. 492, descr. orig. ♂ [Veragua, coll. Ribbe].

¹ Berl. & Stolz. P. Z. S. 1896, p. 368.

² Scl. P. Z. S. 1873, pp. 780, 782.

Habitat. COSTA RICA: Pozo Azul Pirris (Underwood coll., Mus. Tring); Boruca (Cherrie coll., Mus. Tring). CHIRIQUI: Volcan de Chiriqui¹ (Arcé coll.); Bugaba¹ (Arcé coll.); Divala² (W. W. Brown coll.). VERAGUA: Santiago de Veragua³ (Arcé coll.). PANAMA: Lion Hill Station⁴ (McLeannan coll.). W. COLOMBIA: Medellin, Remedios, Neche in Antioquia⁵ (T. K. Salmon coll.); Yuntas, Rio Dagua, 1200 feet (Raap coll., Mus. Tring). N.W. ECUADOR: Cachabi⁶, 200 feet (W. F. H. Rosenberg coll.), San Javier, 60 feet (G. Flemming coll., Mus. Tring, Vindob.).

Typical locality. VERAGUA.

Type in Mus. H. v. Berlepsch: ♂ ad. ex Veragua, coll. Ribbe.

♂ *ad.* (Chiriqui).—Feathers of the crown and occiput, except the blackish bases, bright ultramarine-blue; broad frontal band and whole body above and below deep velvety black. Axillaries and under-wing-coverts rather duller, more brownish black. Bill black; feet blackish brown. Iris dark red (W. F. H. Rosenberg, MS.). Wing 64; tail 27; bill 9 mm.

♀ *ad.* (Bogava, Chiriqui, Nov. 6, 1903; H. Watson coll., Mus. Tring).—Top of the head and back dark grass-green; wing- and tail-feathers dusky, outwardly margined with pale green, much paler and more yellowish than the back. Sides of the head and under-surface dull greenish, the throat underlaid with dirty greyish; middle line of abdomen and under-tail-coverts pale dirty yellowish. Axillaries and under-wing-coverts dirty greyish, sometimes narrowly margined with pale greenish yellow. Bill blackish, lower mandible yellowish grey; feet blackish brown; iris dark red (Watson, MS.). Wing 61½; tail 28; bill 9½ mm.

Adult males from different localities present no variations in colour; perhaps those from S.W. Colombia and N.W.

¹ *P. cyaneocapilla* Salvin, P. Z. S. 1870, p. 200.

² *P. velutina* Bangs, Auk, xviii. (1901) p. 364.

³ *P. cyaneocapilla* Salvin, P. Z. S. 1867, p. 149.

⁴ *P. cyaneocapilla* Sclater & Salvin, P. Z. S. 1864, p. 362.

⁵ *P. cyaneocapilla* iid. P. Z. S. 1879, p. 517.

⁶ *P. velutina* Hartert, Nov. Zool. v. (1898) p. 488.

Ecuador have the crown a shade darker blue, but this is not quite constant. Specimens from Chiriqui and Costa Rica have large bills and rather long wings. Ten males from N.W. Ecuador and one from Yuntas, S.W. Colombia, are distinguished by their much smaller bills and considerably shorter wings. The tail is also a little shorter than in Chiriqui skins. Four adult males from Antioquia and three from Panama (*McLeannan*) are intermediate in size, but have the small bills of the southern race. Very likely the birds from south of the isthmus constitute a different form worthy of a name, but I should like to see more specimens from Panama before separating it.

The following measurements shew the differences in size very clearly:—

	Wing. mm.	Tail. mm.	Bill. mm.
♂ ♂ ad.			
7: Costa Rica (Boruca, Pozo Azul Pirris) . .	62-64	26-28	9-10
10: Chiriqui	62-64	27-29	9
3: Panama (Lion Hill Station)	58-59½	26½-28	7-8
4: Antioquia (Remedios, &c.)	57-59	26½-27	7½-8
1: Rio Dagua, S.W. Colombia	56½	26	7¾
10: N.W. Ecuador (Cachavi, S. Javier)	55½-57	25-28	7½-8
♀ ♀ ad.			
3: Costa Rica (Boruca)	61½-63	27-30	10
1: Bogava, Chiriqui	61½	28	9½
1: Antioquia	57	27	7½
3: N.W. Ecuador (S. Javier)	55-56	26-28	8

11. PIPRA CORONATA.

Pipra coronata Spix, Av. Bras. ii. (1825) p. 5, tab. vii. fig. 1 (♂ ad.) ["ad pagum ST. PAULI in sylvis fl. Solimoëns": types in Mus. Monac. examined].

Pipra herbacca Spix, Av. Bras. ii. (1825) p. 6, tab. viii a. fig. 1 (♀) ["in sylvis fl. AMAZONUM": spec. typ. in Mus. Monac. examined].

Pipra cyanocapilla Hahn, Vögel aus Asien, etc., Lief. xv. (1826)¹ tab. iii. fig. 2 (♂) [Brasilien].

¹ In the Library of the Zoological Museum of Munich there is a copy of Hahn's work with the original wrappers of the livraisons preserved. On the wrapper of livraison xv. 1826 is printed as the date of issue, and Spix's name *P. coronata*, published in 1825, has therefore the priority. It

Habitat. N.W. BRAZIL: S. Paulo d'Oliveira, R. Solimoëns (Spix coll.); Upper Rio Negro¹ (Wallace coll.); S. Pedro, Cocuy, Marabitanas and Rio Içanna: Upper Rio Negro² (Natterer coll.); Rio Javarri³ (Bates coll.). N.E. PERU: Pebas⁴; Rio Tigre (Hauxwell coll., in Mus. Berlepsch); Loretoyacu⁵ (Whitely coll.); Nauta (Hauxwell coll., Mus. Tring). EASTERN ECUADOR: Quijos⁶; Rio Napo⁷; Santiago⁸ (Festa coll.); Sarayacu⁹ (Buckley coll.).

Typical locality. S. PAULO D'OLIVEIRA, R. SOLIMOËNS.

Types. Two male ad. in Zoolog. Mus. Univers. Monac.—Spix coll.

♂ *ad.* (Nauta, N.E. Peru, 17 Nov., 1883; J. Hauxwell coll.).—Forehead, crown, and occiput pale azure-blue, with the bases of the feathers blackish, this light blue cap being encircled by a narrow, darker, more ultramarine-blue border, which is scarcely indicated in the supraloral region. Whole body above and below dull brownish black with a slight violet hue, strongest on the upper-tail-coverts. Axillaries and under-wing-coverts dull brownish black. Bill blackish, lower mandible pale brownish; feet very dark horn-brown; iris red (Hauxwell, MS.). Wing $58\frac{1}{2}$; tail 25; bill $8\frac{1}{2}$ mm.

♀ *ad.*—Not distinguishable from that of *P. velutina*. Upper-parts dark grass-green; wings and tail-feathers dusky with light green edges; sides of the head dull greenish, lores slightly more yellowish green. Chest and sides dull greenish, throat-feathers yellowish grey with greenish tips; middle line of abdomen pale dirty yellowish. Axillaries and under-

may be remarked that the quotation "Hahn and Küster" is not correct, since, on the titlepage (at least of livraisons i.-xvi.) Hahn alone figures as the author.

¹ *Sci. & Salv. P. Z. S.* 1867, p. 580.

² *Pelzeln, Orn. Bras.* ii. (1868) p. 128.

³ *Sclater, P. Z. S.* 1857, p. 265.

⁴ *Sci. & Salv. P. Z. S.* 1867, p. 978.

⁵ *Tacz. Orn. Pérou,* ii. (1884) p. 343.

⁶ *Sci. P. Z. S.* 1854, p. 114.

⁷ *Allen, Bull. Amer. Mus. N. H.* ii. (1889) p. 72.

⁸ *Salvadori & Festa, Boll. Mus. Torino,* xiv. no. 362 (1889) p. 14.

⁹ *Sclater, Cat. Birds Brit. Mus.* xiv. (1888) p. 299.

wing-coverts dull yellowish grey. Upper mandible dark horn-brown, lower brownish white; feet dark horn-brown. Wing 56-58½; tail 28-30; bill 9 mm.

Remarks.—Adult males from the Upper Rio Negro (S. Pedro, Cocuy, Marabitanas), East Ecuador, and N.E. Peru (Nauta, Pebas) are absolutely identical. All the specimens which I have examined have the light blue cap encircled by a darker, more ultramarine-blue border. The general plumage is always dull brownish black (never deep velvety as in *P. velutina*), with a faint but distinct violet tinge on the rump and upper-tail-coverts. There is never any trace of the black forehead so conspicuous in *P. velutina*.

The female above described is from Olivença on the Amazons, the locality of *P. coronata* Spix. Two females from Marabitanas are quite similar, while two from Nauta are rather darker green on the chest. All these specimens, however, agree among themselves in having the under tail-coverts and the middle line of the abdomen very pale dirty yellowish.

Immature males in which the black feathers are still mixed with some of the greenish feathers of the juvenile plumage differ from those in perfect adult dress in the crown being of a duller, less shining blue.

P. coronata appears to be confined to the low countries of the Upper Amazons and its northern tributaries. The most westerly point in Peru whence I have seen specimens is Nauta. In the British Museum there is one ♂ ad. said to be from the "Upper Ucayali," but it has no collector's label, and I strongly doubt the correctness of the locality.

Measurements.

	Wing. mm.	Tail. mm.	Bill. mm.
♂ ♂ ad.			
5: Rio Negro (<i>Natterer</i>)	59-60	26½-30	8-9
4: N.E. Peru (Nauta, Rio Tigre)	58-60	25-27	8-8½
2: East Ecuador	58½, 60	28, 29	8½
♀ ♀.			
2: Rio Negro (<i>Natterer</i>)	57, 58½	30	9
1: Olivença, Amazons (Hahnel coll.)	56	29	9½
4: Nauta, Rio Tigre	56½-59	28-29	9



PIVIA EXQUISITA

12. *PIPRA EXQUISITA*. (Plate I.)

Pipra exquisita Hellmayr, Bull. Brit. Orn. Cl. xv. p. 56 (March 1905), descr. orig. ♂ ♀ [Chuchurras, Centr. Peru].

Habitat. CENTRAL PERU: Chuchurras, Prov. Huánuco, 1260 feet (W. Hoffmanns coll.). W. BRAZIL: Rio Purús, at the mouth of the Rio Acré (in Mus. Pará, *vide* Goeldi).

Typical locality. CHUCHURRAS, CENTR. PERU.

Type in Mus. Tring: "♂" ad. Chuchurras, July 1904; coll. Hoffmanns.

♂ *ad.* (Chuchurras, Peru, July 1904; W. Hoffmanns coll.: type of the species).—A narrow frontal band, lores, supra-orbital region, and whole back dark green (between bottle- and grass-green of Ridgway's Nomencl. pl. x.). Crown and occiput beautiful turquoise-blue, the base of the feathers being dark green. Wing-coverts, quills, and tail-feathers blackish, dark green like the back on the outer webs. Cheeks, ear-coverts, and throat rather darker green; fore-neck and sides of breast green like the back; middle of breast, abdomen, and under-tail-coverts bright clear yellow. Axillaries and under-wing-coverts dirty grey, with more yellowish margins. Bill blackish, lower mandible dirty whitish; feet dark horn-brown; iris "dark red" (W. Hoffmanns, MS.). Wing $59\frac{1}{2}$; tail 28; bill 8 mm.

Two other males, same date and locality, agree in every respect with the type. Their measurements are:—Wing 59, 58; tail $26\frac{1}{2}$, 27; bill $7\frac{1}{2}$, 8 mm.

♀ *ad.* (Chuchurras, Peru, July 1904; W. Hoffmanns coll.).—Whole upper-parts, including crown and occiput, uniform grass-green, rather lighter than in the male. Wings and tail as in the latter. Lores yellowish green; a narrow rim round the eye pale yellowish; cheeks and ear-coverts dull greenish. Throat-feathers pale yellowish with dull greenish tips; across the chest a well-defined bright green band, which is continued along the sides of the breast; middle of the breast, abdomen, and under-tail-coverts bright clear yellow. Axillaries and under-wing-coverts

more yellowish than in the male*. Bill and feet as in the latter; iris "brown-red," according to the collector. Wing 56; tail 27 mm.

In the original description I compared the species with *P. opalizans*; but a close examination proves beyond doubt that, notwithstanding its green plumage, it clearly belongs to the section of *P. coronata*. The bill is of the same form, with the upper mandible blackish; the feet are dark horn-brown and the iris red. On the other hand, *P. opalizans*, *P. nattereri*, and *P. gracilis* form a natural group, characterized by the flesh-coloured feet, white iris, and pale yellow margins to the inner webs of the remiges.

The female of *P. exquisita* stands somewhat between the two groups, having the dark brown feet and the bill of *P. coronata*, and the bright yellow abdomen of *P. opalizans* and its allies. From the type of *P. gracilis* it differs at a glance by the broad dark green jugular band, the dark brown feet, and the lack of the yellow inner margins to the remiges.

Dr. Goeldi has lately shown me some skins of this bird obtained on the Upper Rio Purús, in West Brazil, near the Bolivian frontier. They appear to be perfectly similar to the types from Peru.

In the British Museum there are two specimens obtained by Bartlett near Chyavetas and on the Rio Huallaga, Eastern Peru. They have the crown a shade darker sky-blue than the typical examples from Chuchurras, and encircled by a narrow azure-blue border as in *P. coronata*. The yellow on the lower parts is not quite so extensive, and the throat is rather darker green. An evidently young male from the Rio Juruá (Mus. II. v. Berlepsch) agrees with them in the colour of the under-parts, but the crown is of a uniform dull ultramarine-blue.

It must remain an open question whether the birds from the Huallaga, Ucayali, and Juruá constitute a race different from *P. exquisita* or not. Anyhow, a skin in

* There is a misprint in the original description (*op. cit.* p. 57) as regards the differences between *P. exquisita* ♀ and *P. gracilis*. It should read: "in having . . . no pale yellow edges to the inner webs of the remiges."

Count Berlepsch's collection proves beyond doubt that young males have the crown duller and of a less shining blue than the adults. Consequently, the specimens from Chyavetas and Rio Huallaga cannot be young males of *P. coronata*, as considered by Sclater and Salvin.

The following references pertain to this doubtful form:—

Pipra cyaneocapilla (nec Hahn!) Scl. & Salvin, P. Z. S. 1866, p. 190 [Upper Ucayali]; iid. l. c. 1867, p. 751 [Chyavetas]; Ihering, Revist. Mus. Paul. vi. (1905) p. 435 [Rio Juruá, W. Brazil].

The measurements of the three specimens examined by me are as follows:—

	Wing. mm.	Tail. mm.	Bill. mm.
1. Mus. Brit., "♂": Chyavetas, E. Peru, July 1866 (E. Bartlett coll.)	56½	27	9
2. Mus. Brit., (♂) ad.: Huallaga (E. Bartlett coll.)	60	28	8
3. Mus. Berlepsch, "♂" juv.: Rio Juruá, August 1902 (E. Garbe coll. no. 3679: "iris red-brown")	61½	30½	8

13. *PIPRA SUAVISSIMA*.

Pipra suavissima Salvin & Godman, Ibis, 1882, p. 79, tab. i. ["Guiana Brit. in montibus 'Merumé' dictis, et Bartica Grove"].

Pipra serena (nec Linnæus!) Cabanis in Schomburgk, Reise Brit. Guiana, iii. (1848) p. 697 [Roraima].

Habitat. BRITISH GUIANA: Bartica Grove, Merumé Mountains, R. Attapurow¹, Quonja, Roraima¹ (Whitely coll.), Roraima (Schomburgk), Essequibo River and Upper Mazaruni R. (Mus. Tring).

Typical locality. MERUMÉ Mts.

Types. ♂♂ and ♀♀, Merumé Mts., in Mus. Brit. ex coll. Salvin-Godman.

♂ *ad.* (Upper Mazaruni River; Mus. Tring).—Forehead and anterior part of crown covered with lamelliform, milky-white feathers, their extreme base only being blackish. This white patch reaches as far back as the posterior margin of

¹ Salvin, Ibis, 1885, p. 300.

the eye, and ends in a very narrow pale Nile-blue border. Hind crown, back, narrow frontal band, sides of the head, throat, breast, sides of body, as well as wings and tail, deep velvety black; rump and upper-tail-coverts turquoise-blue, the concealed basal portion of the feathers black; whole abdomen beautiful orange, passing into pale yellow on the anal region; under-tail-coverts dark olive, some with dull orange tips. Axillaries and under-wing-coverts black. Bill black; feet blackish brown.

Ten males measure:—Wing 55–59; tail 25–30; bill 9 mm.

♀ *ad.* (Roraima, 19 Nov. 1885; H. Whitely, jr., coll.).—Forehead and anterior part of the crown (occupied in the male by the milky-white patch) dull pale bluish; hind crown and whole back bright grass-green. Wing-coverts, quills, and tail-feathers dusky, with green margins, rather paler than the back. Lores dirty yellowish, a narrow rim round the eye rather purer; sides of head and neck, fore-neck, and sides of body dull green; throat mixed with pale yellowish; middle of breast and abdomen, including under-tail-coverts, bright yellow. Axillaries and under-wing-coverts pale yellowish. Bill and feet dark horn-brown.

Four females measure:—Wing 58–59; tail 29–30; bill 9 mm.

There is very little variation amongst the specimens before me. One ♂ *ad.* has a few dark orange feathers on the middle of the fore-neck, an indication of the yellow patch so prominent in *P. serena*. The female resembles very closely that of *P. nattereri*, but is at once known by having the bluish tinge confined to the anterior portion of the crown.

14. PIPRA SERENA.

Pipra serena Linnæus, Syst. Nat. xii. tom. i. (1766) p. 340 [based on Brisson's "Manakin à front blanc," Ornith. iv. p. 457: CAYENNE¹].

¹ Linnæus says "Habitat in Cayana, Surinamo," but he quotes only Brisson, who expressly states "On le trouve à Cayenne." So far as I know, the species has not yet been obtained in Surinam.

Habitat. Known only from CAYENNE* (specim. in various collections: Mus. Brit., Vindob., Tring, H. v. Berlepsch, &c.).

♂ *ad.* (Cayenne: Mus. Tring).—Forehead milky white, bordered posteriorly by a slight pale bluish line; whole crown, sides of the head, back, wings, tail, throat, and breast velvety black; rump and upper-tail-coverts cerulean blue, the base of the feathers black. Whole abdomen, under-tail-coverts, and a small patch in the middle of the fore-neck bright clear yellow. Axillaries and under-wing-coverts black. Bill black, lower mandible more brownish; feet dark horn-coloured.

Four males measure:—Wing 51–53; tail 26–28; bill $8\frac{1}{2}$ –9 mm.

♀ *ad.* (Cayenne; collected by G. K. Cherrie: Mus. Tring).—Exactly like that of *P. suavissima*, but readily distinguishable by having the forehead and crown bright grass-green like the back. Wing 53; tail 27; bill 9 mm.

The male differs from *P. suavissima* in the following points:—The white patch on the head is confined to the forehead; the abdomen and *under-tail-coverts* are clear yellow; the blue of the rump is decidedly darker. Besides, there is a distinct yellow spot on the fore-neck, not to be seen in the species of British Guiana.

15. *PIPRA GRACILIS*.

Pipra gracilis Hellmayr, Verhandl. zool.-bot. Gesellsch. Wien, 1903, p. 202 [Engenho do Gama, Matto Grosso].

Pipra nattereri Pelzeln, Zur Orn. Brasil. ii. (1868) p. 127 [part.; ♀ ex Engenho do Gama].

Habitat. W. BRAZIL, MATTOGROSSO: Engenho do Gama, R. Guaporé (Natterer coll.).

Typical locality. ENGENHO DO GAMA.

Type in Mus. Vindob., no. 15845, “♀” *ad.* “Eng. do Gama, 10 August, 1826”: Natterer coll.

Whole upper surface light grass-green; upper-wing-coverts, wing- and tail-feathers dusky, bright grass-green on the

* *Dasyucetopa serena* Bonaparte, Bull. Soc. Linn. Normandie (Caen), ii. (1857) p. 37.

outer webs. Lores and sides of the head rather duller greenish than the back. Under-parts bright clear yellow, throat, fore-neck, and sides of breast but slightly suffused with greenish; axillaries and under-wing-coverts pale yellow; inner webs of remiges very distinctly margined with yellowish white. Bill horn-brown, lower mandible and extreme tip of the maxilla whitish; feet flesh-coloured; iris dirty white (Natterer, MS.). Wing 52; tail 27; bill 9 mm.

This specimen is apparently the female of what will doubtless prove to be a brilliant species of *Pipra*. In general colour it resembles the female of *P. nattereri*, having the bill of the same shape, size, and colour, and the feet flesh-coloured, but is seen to differ at once in its green (not bluish) pileum, and less greenish suffusion on the throat and fore-neck. From *P. serena* ♀ it is easily recognisable by its flesh-coloured feet, from that of *P. opalizans* by its much smaller and darker bill, much less greenish throat and chest, and lighter green back.

16. PIPRA NATTERERI.

Pipra nattereri Selater, P. Z. S. 1864, p. 611, tab. 39, descr. orig. ♂ ♀ [Borba, Rio Madeira]; Pelzeln, Zur Ornith. Brasil. ii. (1868) p. 127 [pt., Borba].

Habitat. NORTH BRAZIL: Borba, Rio Madeira (Natterer coll.).

Type. ♂ ad., Borba, coll. Natterer, in Mus. Vindob.

♂ ad. (Mus. Vindob., Borba, Rio Madeira, January 1830; Natterer coll.: type of species).—Top of the head and nape as well as the rump and upper tail-coverts beautiful white, slightly opalizant, the white cap bordered below by a narrow pale bluish line beginning from the eye and reaching to the sides of the nape. Whole back and outer margins of the upper-wing-coverts, quills, and tail-feathers bright grass-green; inner webs of wing- and tail-feathers dusky. Sides of the head and neck dull greenish. Under-surface bright clear yellow, chin and throat washed with greenish. Axillaries and under-wing-coverts yellowish white; along the inner webs of the quills a narrow yellowish-white margin. "Iris dirty white; culmen greyish black, lower mandible

pale bluish grey; feet pale yellowish brown" (Natterer, MS.). In the dried skin the upper mandible is blackish, the lower whitish, the feet flesh-coloured. Wing 50; tail 28; bill 9 mm.

♀ *ad.* (Mus. Vindob., Borba, February 9, 1830; Natterer coll.).—Pileum dull bluish; whole back bright grass-green, the uropygial feathers with a slight bluish hue. Wing- and tail-feathers dusky, exteriorly margined with yellowish green. Sides of head and neck, throat, and chest dull greenish, rest of under-parts clear yellow. Axillaries and under-wing-coverts pale yellow. Upper mandible greyish black, lower jaw bluish grey; feet pale yellowish grey. Wing 51; tail 27-28; bill 9 mm.

The four specimens of this magnificent bird collected by Natterer are still the only examples known.

17. *PIPRA OPALIZANS*.

Pipra opalizans Pelzeln, Zur Orn. Brasil. ii. (1868) pp. 128, 186, descr. orig. ♂ [Pará]; Berlepsch, Ibis, 1898, p. 60, tab. ii. (♂ *ad.*) [Ourém, Rio Guamá]; Heilmayr, Verhandl. zool.-bot. Gesellsch. Wien, 1903, p. 201, descr. ♀ [Bemavides]; id. Nov. Zool. xii. 1905, p. 294.

Habitat. Environs of PARÁ, N. BRAZIL: Pará (Natterer coll.); Ourém on the Rio Guamá (W. A. Schulz coll.); Bemavides (Steere coll.); Igarapé-Assú (A. Robert coll., Mus. Tring).

Typical locality. PARÁ.

Type lost.

♂ *ad.* (No. 2115, A. Robert coll., Igarapé-Assú, Pará, April 19, 1904: Mus. Tring).—"Top of the head ornamented by a plaque composed of flat metallic feathers of unsurpassed beauty. They might be classed as being like mother-of-pearl with a glittering hue of opal, but at the same time may be observed a rich coruscation on it of the purest gold and silver"*. Back bright grass-green, as are also the wing-coverts, the outer webs of the quills, and the tail-feathers. Inner webs of remiges and rectrices dusky except the central pair of the latter, which are uniform green, a little paler than

* I use the words of Count Berlepsch, as they describe the peculiar colour of the head in the most exact manner.

the back. A narrow frontal band, superciliaries, sides of the head, throat, chest, and sides of the body paler and duller greenish than the upper-parts; middle of breast, abdomen, and under-tail-coverts bright clear yellow. Axillaries and under-wing-coverts rather paler yellow, along the inner webs of the quills a distinct yellowish white margin. Bill (in dried skin) whitish, base of upper mandible plumbeous; feet flesh-coloured; iris silvery white (Robert, MS.). Wing 53; tail $26\frac{1}{2}$; bill 10 mm.

♀ *ad.* (Bemavides, near Pará, 28th July; J. B. Steere coll.: Mus. Tring).—Whole upper surface, including the head above, bright green; wings and tail as in the male. Sides of the head, throat, chest, and sides of the body rather duller greenish; middle of breast, abdomen, and under-tail-coverts bright yellow. Axillaries and under-wing-coverts paler yellow, quills with a distinct yellowish white inner margin as in the male. Bill and feet as in the latter.

The two females collected by Mr. A. Robert differ from that above described in having the upper mandible pale brown. Iris marked in one specimen (no. 2038) as "yellowish white," in another "brown" (A. Robert, MS.). Wing $53\frac{1}{2}$ –54; tail 26–29; bill 10 mm.*

P. opalizans has a much broader and larger bill than its nearest ally *P. nattereri*, with the culmen more strongly curved.

18. PIPRA VIRESCENS.

Pipra virescens Pelzeln, Zur Orn. Bras. ii. (1868) pp. 128, 187, descr. orig. [part., descr. ♂ (nec ♀!)]—Barra do Rio Negro].

Tyranneutes brachyurus Selater & Salvin, Ibis, 1881, p. 269, descr. orig. [Bartica Grove, Brit. Guiana].

Pipra virescens Salvin & Godman, Ibis, 1883, p. 208 (crit.); Salvin, Ibis, 1885, p. 300 [Camacusa, Brit. Guiana].

Pipra virescens subsp. *brachyura* Selater, Cat. Birds Brit. Mus. xiv. (1888) p. 303 [Brit. Guiana].

Habitat. NORTH BRAZIL, Lower Amazonia: Barra do Rio Negro (Natterer coll.). BRITISH GUIANA: Bartica Grove, Camacusa, R. Carimang (H. Whitely coll.).

* Three specimens measured.

Typical locality. BARRA DO RIO NEGRO (Manáos), Lower Amazons.

Type. No. 15155, Mus. Vindob., "♂" ad., Barra do Rio Negro, 3 October, 1830: coll. Natterer.

"♂" *ad.* (type of species: Mus. Vindob.).—Upper surface pale olive-green; crown bright lemon-yellow, the extreme tips of the feathers only being green. Wing-coverts, quills, and tail-feathers dusky, externally margined with the colour of the back. Sides of the head and neck dull greenish. Under-parts pale yellowish, fore-neck and sides shaded with pale greenish; axillaries and under-wing-coverts pale yellowish. Upper mandible and tip of the lower blackish brown, base of the latter whitish.

♀ *ad.*—Exactly like the male in colour and structure.

This species is at once recognisable by the peculiar shape of the two outer rectrices. *The outermost pair is very narrow and about 10 mm. shorter than the longest, with the shaft much stiffened.* The next pair agrees in the latter respect, but is rather broader and much longer, being only about 2 mm. less than the middle tail-feathers. This striking character, which has been overlooked hitherto, is quite constant in eleven specimens and is common to both sexes.

Ten adults (of both sexes) from British Guiana agree with the type in having a large yellow vertical spot, and differ only by the slightly longer tail and larger bill. Some of them have the crown-patch rather smaller and of a darker, more golden yellow, but others are exactly like the type. Sometimes there are faint traces of pale greyish shaft-lines on the throat.

Measurements.

	Wing.	Tail.	Bill.
	mm.	mm.	mm.
1. ♂ ad. Barra do Rio Negro. (Type of species.)	47	19	9
2, 3. ♂ ♂. Camacusa, Brit. Guiana	50, 50½	20	9½, 10
4, 5. ♀ ♀. Camacusa, "	50	23, 24	9½, 10
6. ♂ ad. Rio Carimang, "	51	21½	9½
7. ♂ ad. Bartica Grove, "	47	22½	9½
8, 9. ♀ ♀. " (Type of <i>Tyranneutes brachyurus</i> Sc. & Salv.)	48, 50½	22, 23	9½-10

19. *PIPRA STOLZMANNI**, sp. nov.

Pipra virescens (nec Pelzeln!) Pelzeln, Zur Orn. Brasil. ii. (1868) pp. 128, 187 [part.: "♀ et mas junior."—Borba, Marabitanas].

Pipra sp. ign. Selater & Salvin, P. Z. S. 1867, p. 751 [Xeberos, Chyavetas, N.E. Peru].

Pipra virescens (nec Pelzeln!) Selater & Salvin, P. Z. S. 1873, p. 283 [Xeberos, Chyavetas, Chamicuros]; Taczanowski, P. Z. S. 1882, p. 23 [Yurimaguas, N.E. Peru]; id. Ornith. Pérou, ii. (1884) p. 345 [Yurimaguas]; Salvadori & Festa, Boll. Mus. Torino, xiv. no. 362 (1899) p. 14 [Santiago, East Ecuador]; Berlepsch & Hartert, Nov. Zool. ix. (1902) p. 53 [Nericagua: Orinoco; Suapure: Caura R., Venezuela].

Pipra virescens "subsp. *typica*" Selater, Cat. Birds Brit. Mus. xiv. (1888) p. 302 [Rio Negro, East Peru, East Ecuador, Bogotá].

Habitat. NORTH BRAZIL, Upper Rio Negro: Marabitanas; Borba on the Rio Madeira (Natterer coll.). EASTERN PERU: Yurimaguas (Stolzmann coll.); Xeberos, Chyavetas, Chamicuros (Bartlett coll.). EASTERN ECUADOR: Santiago (Festa coll.); Sarayaçu (Buckley coll.). VENEZUELA: Nericagua, on the Upper Orinoco R. (G. K. Cherrie coll.); Suapure on the Caura, a southern tributary of the Orinoco (Klages coll.). COLOMBIA: Bogotá coll. (trade-collections: many specimens in Mus. Berlepsch, Tring, Munich, &c.).

Typical locality. MARABITANAS, Upper Rio Negro, N.W. Brazil.

Type in Mus. Vindob., no. 15157, "♂" ad., "Marabitanas, 16 March, 1831": Natterer coll.

♂ *ad.* (type of species).—Similar to *P. virescens*, but without the yellow vertical spot and with a quite differently shaped tail. The outer rectrices are by no means narrowed or stiffened, but of the same shape as the others. The outermost pair is fully as long as the central; the second slightly shortened, being from two to four millimetres less than the first and third.

* Named in honour of Dr. Jean Stolzmann, of the Branicki Museum, Warsaw, who first suggested to me the distinctness of the species.

♀ *ad.*—Exactly like the male in colour and structure.

I have before me twenty-four specimens from the Upper Rio Negro, Orinoco, Caura, N.E. Peru, East Ecuador, and from Bogotá collections. Not one of them has the yellow vertical spot which is always present in *P. virescens*, but in some specimens there are a few very small pale yellowish dots on the forehead or anterior part of the crown, only to be seen when the feathers are raised. In two Bogotá skins and one “♀” from Borba (Natterer coll.) the two outer tail-feathers are equal and about two millimetres shorter than the remainder; in all the other specimens the outermost rectrix is quite as long as the third, while the second is from two to four millimetres shorter—just as described above. Sexed males and females are quite alike in this character. It is strange that this peculiarity should not have been noticed before.

Three examples collected by Natterer at Marabitanas and Borba, which were considered by Pelzeln to be the ♀ and ♂ juv. of his *P. virescens* with a yellow crown-patch, agree in every respect with the large series from Peru, Ecuador, Venezuela, and Bogotá. I can see no difference between specimens from different localities either in size or colour.

Although *P. virescens* and *P. stolzmanni* are evidently geographical representatives, the difference in the form of the tail is so striking that I do not feel justified in using trinomials.

Measurements.

	Mus. Vindob.	Wing. mm.	Tail. mm.	Bill. mm.
1. “♂” ad. Marabitanas, Rio Negro. (Type of species.)	49	21	10
2. “♀.” Borba, Rio Madeira, Feb. 7, 1820. Natterer coll.	49½	25	9¾
Mus. Brit.				
3. “♂” ad. Marabitanas, March 16, 1831. Natterer coll.	47	21½	9
4. “♀.” Xeberos, N.E. Peru, June 2, 1866. E. Bartlett coll.	48	26	10½
5. “♂.” Chamicuro, N.E. Peru, May 3, 1867. E. Bartlett coll.	48	27	9½
6. “♀.” Chyavetas, N.E. Peru, July 16, 1866. E. Bartlett coll.	49	23	10

	Mus. Brit.	Wing. mm.	Tail. mm.	Bill. mm.
7.	"♂" Chamicuros, N.E. Peru, June 3, 1867. E. Bartlett coll.	49	22	9½
8.	— Xeberos, N.E. Peru. E. Bartlett coll.	48	24	8¾
9.	— Sarayaçu, E. Ecuador, C. Buckley coll.	49	22	10
10.	— " " " "	52	26	11
Mus. Branicki.				
11.	"♂" ad. Yurimaguas, N.E. Peru, Feb. 28, 1881. Stolzmann coll.	49	21	11
Mus. Tring.				
12.	"♂" juv. Nericagua, Orinoco, Apr. 7, 1899. Cherrie coll.	48	22	9
13.	"♀" ad. Nericagua, Orinoco, Apr. 7, 1899. Cherrie coll.	47½	24	10
14.	"♂" ad. Suapure, Caura R., Apr. 5, 1900. S. Klages coll.	50½	24½	9
15.	Native Bogotá collections	50	27	9½
16.	" " " "	50	28	10
17.	" " " "	50½	23	10
18.	" " " "	51	25	10
19.	" " " "	51	23	10
20.	" " " "	48	23	(Damaged.)

II.—*Ostrich-farming in South Africa.*

By the Hon. ARTHUR DOUGLAS*.

THE domestication and farming of Ostriches for the production of feathers was first commenced in South Africa in 1867. Previously to that date no Ostrich had ever been bred or reared there in a tame state, though a few captured wild birds had been kept in confinement in Zoological Gardens. The idea was universal that the Ostrich would not make a nest and sit in captivity; hence the first efforts at hatching and rearing were made with incubators, and this system was brought to very great perfection, ninety

* [This paper was read in Section D at the Meeting of the British Association at Cape Town, August 17th, 1905, and was kindly communicated to us by the Author, who, we much regret to hear, has since died.—EDD.]